by Luis Schmidt

The advent of 3D printing presents new challenges for intellectual property owners—particularly in the realms of trademarks and patents. While copyright law has evolved through the years to protect copyrighted works from mass infringement on the Internet, there has been less need for laws protecting patented inventions and trademarked products online, as it has been largely impossible to easily copy and disseminate physical products. But 3D printing is rapidly changing this landscape.

How it Works

The process of printing a 3D model is twofold: First, designs are made or copied from sketches, plans or drawings. Next, those plans or designs are fed to a 3D printer via a computer program in order to produce the final work or product. Designers can collaborate and share ideas for designs on the Internet, while users can customize the pre-designed objects obtained from the Internet for 3D printing. Often, the printed products originate from copyrighted works or products protected by utility patents or industrial design registrations. Computers and computer networks are key to 3D printing–computer networks can disseminate these designs beyond space and time limits.

The Copyright Comparison

Copyright law has faced an uphill battle in the digital realm against users of works. Written, visual and audio works traditionally have been the easiest to copy and disseminate via computers, but with 3D printing, the conflict has been extended to useful items protected by patents or design law. Conflicts between patents and the digital realm have not been common until now. From the times of the printing press until today, copyright law has dealt with challenging technologies, which has helped to strengthen a legal regime around copyrighted works. Technologies such as photocopiers, recording machines or computers have allowed ordinary people power to copy or disseminate works. 3D printing expands that power to new kinds of works by eliminating the burden of shipping products from far away.

Copyright infringement is characterized by:

- Designing around, drawing around, scanning (copying in general) works without authorization;

- Disseminating the copied works over the Internet (by making available, transmitting, streaming or downloading them);
- Making (by copying) from a sketch, plan or drawing, any sculpture, applied art or building.
- Regardless of whether:
- The sculpture is made by adding or subtracting materials.
- The applied art work is made under an industrial process, or
- The architecture building is made under construction techniques.

The medium is quite irrelevant for copyright law. Infringement can be found whether the copying or disseminating happens by employing traditional or newer media, including 3D printing. Thus, patent and trademark owners whose markets may be threatened by 3D printing should seriously consider protecting copyright-eligible elements of their products by securing copyright protection.

Applying Copyright Principles to 3D Printing

Over the past 20 years a fairly robust copyright enforcement system has evolved to deal with websites that host works uploaded by users (this applies to sites ranging from large scale to personal blogs). This system can easily be employed to address 3D printing—the law does not need to be rewritten.

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The following are principles under the U.S. Digital Millennium Copyright Act (DMCA), the European Directive or related systems:

- Hosting sites are not police or judges, and cannot be forced to find infringement;

- Hosting sites enjoy immunity if acting as an impartial party between uploaded content and rights holders;

- Anyone can upload a file to a site. Under notice and take down rules: a) the copyright holder can object to the upload by virtue of a notice; b) the hosting site removes the file; c) the uploader can oppose the removal; d) the file then returns to the holders' site; and e) the copyright holder can take initiate a court action claiming infringement.

Although patents and trademarks are also IP rights, they stand on different principles than copyrights. Their scope of protection is different as well. Copyright includes the right of reproduction, distribution, communication to the public/making available and the right to transform into derivative works-. Patent and industrial design rights include the right to make, use, offer to sell and sell. A trademark right is essentially the right to use a mark as a trade symbol, which is distinct from patents or copyrights.

Unlike copyrights, patent rights do not extend to the making, by copying, of plans or drawings of products. Patent rights do also not extend to dissemination of any copied plan or drawing, and even less so to the products obtained via those plans and drawings. It has, until now, been simply unthinkable that such products could be easily disengaged from their physical manifestations and widely copied and disseminated, as is possible with authored works.

The Road Ahead

The above can be viewed as a serious threat to patented and trademarked products on the Internet. In addition to reproduction rights, digital IP needs rights of access and in general, rights of communication to the public. Without such rights, nothing could be done to protect copyrighted works in digital networks. Before 3D printing, inventors and companies did not require rights of access or communication to the public, since products could not be easily copied as works. The situation is changing rapidly though, and times will soon become more challenging for patented and trademarked products.

The question has arisen whether patent and trademark laws need to evolve so that: a) online dissemination of plans or drawings of patented or trademarked products can be stopped by IP owners; and b) a notice and take down regime similar to the DMCA can be adopted.

A third question is whether industrial designs should be afforded copyright-like protection, instead of patent-like protection, as they are used for works of applied arts. This could offer one solution to the problem.

The future will surely provide answers to the questions technology has raised

today. In the meantime, patent and trademark owners should, to the extent possible, consider taking advantage of the tools available to them under the current copyright regime in order to help protect against the risks posed by 3D printing